

Botanisches Centralblatt.

Referirendes Organ

der

Association Internationale des Botanistes
für das Gesamtgebiet der Botanik.

Herausgegeben unter der Leitung

des *Präsidenten*:

des *Vice-Präsidenten*:

und des *Secretärs*:

Prof. Dr. K. Goebel.

Prof. Dr. F. O. Bower.

Dr. J. P. Lotsy.

von zahlreichen Specialredacturen in den verschiedenen Ländern.

Dr. J. P. Lotsy,

Chefredacteur.

No. 2.	Abonnement für das halbe Jahr 14 Mark durch alle Buchhandlungen und Postanstalten.	1902.
Alle für die Redaction bestimmten Sendungen sind zu richten an Herrn Dr. J. P. LOTSY, Chefredacteur, Leiden (Holland), Oude Rijn 33 a.		

Referate.

KORSCHINSKY, S., Heterogenese und Evolution, ein Beitrag zur Entstehung der Arten. Aus dem Russischen übersetzt von S. Tschulok, Zürich. (Flora. Ergänzungsband zum Jahrgang 1901. p. 240/364.)

Diese Arbeit erschien im Russischen am 14. Januar 1899. Die Quintessenz dieser Arbeit geht aus den folgenden Worten des Verf. klar hervor: „Bekanntlich bildet die Frage von der Veränderlichkeit der Thiere und Pflanzen in der Cultur eine Grundfrage des Darwinismus. Dieser widmete Darwin besonders viel Zeit und auf ihr baute er in der Hauptsache seine Lehre. Und nichtsdestoweniger musste ich mich bald überzeugen, dass die Schlussfolgerungen, zu denen Darwin in Bezug auf die Entstehung der cultivirten Formen gelangt war, auf einer unrichtigen Auffassung der Thatsachen beruht. Wenigstens kann ich in Bezug auf die Gartenpflanzen entschieden behaupten, dass kein einziger Züchter jemals zur Gewinnung von neuen Rassen mit individuellen Merkmalen operirte und dass niemals eine „Häufung“ der letzteren beobachtet wurde. Dagegen sind alle neue Varietäten (mit Ausnahme der Bastarde), deren Herkunft uns bekannt ist, in Wirklichkeit auf dem Wege plötzlicher Abweichungen aus reinen Arten oder hybriden Formen entstanden. Es fragt sich nun, ob nicht diese plötzliche Abweichungen auch in der freien Natur eine ähnliche Rolle spielen und ob sich nicht auf diese Weise die Nicht-

übereinstimmung der Natur und das Vorkommen der Variationen mit der Darwin'schen Theorie erklären lasse.“

„Die Existenz von plötzlichen Abweichungen war Darwin wohl bekannt; allein er legte ihnen zu wenig Bedeutung bei, indem er diese Erscheinung, die ich im Folgenden als Heterogenese bezeichnen werde, für eine abnorme, exceptionelle hielt.

Der, leider jetzt schon verstorbene, Verf. giebt dann eine grosse Anzahl Beispiele solcher durch Heterogenese entstandene „Varietäten“ und zeigt ihre relative Samenbeständigkeit an. Er behandelt hintereinander 1. Variationen des Wuchses (Nanismus, Gigantismus), 2. Variationen des Stengels, 3. Variationen der Krone, 4. Form der Blätter, 5. Blattfärbung, 6. Blütenfärbung, 7. die Variationen im Blütenbau, 8. die Variationen des Blühens (var. *semperflorens*), 9. die Variationen der Früchte. Seine allgemeine Schlussfolgerungen fasst er in den folgenden Abschnitten zusammen: 1. Das Wesen der Heterogenese, 2. die Eigenthümlichkeit der heterogenetischen Merkmale, 3. die Seltenheit der Erscheinung, 4. die äusseren Bedingungen der Heterogenese, 5. die Richtungen der Variabilität, 6. die Eigenschaften der heterogenetischen Variationen, 7. die Ursache der Heterogenese.

Es ist wohl einleuchtend, dass Heterogenese und Mutation, welcher letztere jetzt von de Vries in seiner, im Erscheinen begriffenen, Mutationstheorie (Leipzig, Verlag von Veit & Comp.) behandelt wird, ein und denselben Begriff bilden.

Goethart.

PETERSEN, O. G., Diagnostisk Vedanatomi af N. V. Europas Træer og Buske. (København 1901. Det nordiske Forlag. gr. 8". 96 pp. 77 Figurgruppen im Text.)

Verf. hatte sich die Aufgabe gestellt, ein Handbuch zu schaffen, durch welches man im Stande sei, sämtliche Bäume und Sträucher des nordwestlichen Europas „von *Thymus* bis *Quercus*“ nach rein histologischen Merkmalen zu bestimmen. Nach einigen einleitenden Bemerkungen über den diagnostischen Werth der anatomischen Elemente des Holzes im Allgemeinen folgt ein ausführlicher dichotomischer Schlüssel zu den Gattungen resp. Arten. Hierauf giebt Verf. eine Darstellung der anatomischen Verhältnisse der mitgenommenen Arten, die immer auf eigenen Untersuchungen fusst und von einer bedeutenden Anzahl, fast ausschliesslich originalen Figuren, erläutert wird. Bei solchen schwierigen Fällen, wie z. B. *Larix-Picea* oder *Pomaceen*, wo Verf. eine sichere anatomische Diagnose für kaum möglich hält, werden die Ansichten früherer Verf. ausführlich referirt und ihre Bestimmungsschlüssel mitgetheilt.

Das Werk hat noch den besonderen Zweck, eine Bestimmung der in Torfmooren gefundenen Holzfragmente zu ermöglichen, und es wurden daher nur im Gebiet wirklich einheimische

Arten berücksichtigt. Es wird nicht mitgetheilt, wie schwer oder leicht die Bestimmung subfossiler Hölzer nach der vorliegenden Arbeit ist; selbstverständlich darf die Zersetzung der Objecte nicht zu weit um sich gegriffen haben, da die feineren Strukturverhältnisse dann leicht unkenntlich werden.

Da dieses Buch vorläufig in der Litteratur allein da steht und trotzdem dänisch geschrieben ist, so wird voraussichtlich eine Herausgabe in eine der grösseren Cultursprachen nicht lange auf sich warten lassen.

Morten Pedersen Porsild (Kopenhagen).

PETERSEN, O. G., Til Begrebet Trakeïde. (Oversigt over det Kgl. danske Videnskabernes Selskabs Forhandler. 1901. No. 1. p. 95—105. Mit Resumé: Sur les tracheïdes de **Sanio**. p. 106—108.)

Verf. giebt eine Darstellung der historischen Entwicklung des Tracheïdenbegriffes und der verschiedenen Auffassungen desselben und zeigt, wie der Begriff gegen denjenigen der Libriformzellen (dänisch: „Vedtaver“) schwierig abzugrenzen ist. Da aber eine Grenze zwischen diesen Elementen, wenn sie auch künstlich sein soll, wünschenswerth erscheint, so schlägt Verf., da ein gradueller Unterschied der Tüpfelgrösse unzweckmässig ist, folgende Definitionen vor:

„Die Tracheïden des Holzes umfassen alle mit Hoftüpfeln (dän: „Ringporer“, franz.: „pores à forme de lentilles“) versehenen prosenchymatischen Elemente, von den gefässartigsten bis zu denen mit einem minimalen Hof. Die Libriformzellen werden alsdann auf die als mechanisches Gewebe ausgebildeten Elemente, wo sich die Tüpfel im Profil als Streifen zeigen, beschränkt.“

Morten Pedersen Porsild (Kopenhagen).

THOMAS, A. P. W., Preliminary Account of the Prothallium of *Phylloglossum*. (Proceedings Royal Society. Dec. 1901.)

The author found the prothalli of *Phylloglossum* growing wild among the parent plants in three localities in New Zealand. There is a considerable amount of variation in the shape and size of the mature prothalli, but the general type of construction appears, from the description given, to be constant. The mature prothalli are from 2—6 mm in length and present a general agreement in form and mode of development with the type of prothallus found in *Lycopodium cernuum*: a primary tubercle, a cylindrical region, and a terminal region or crown being distinguishable. The cylindrical region is swollen above while its lower part forms a thinner shaft of greater or less length which expands below into the primary tubercle. The primary tubercle and the lower part of the cylindrical

region are embedded in the soil; chlorophyll is absent, from them, while rhizoids are numerous, especially on the tubercle. In the upper swollen portion of the cylindrical region and in the terminal region, which is unlobed, chlorophyll is present. The meristem is situated between the cylindrical and terminal regions and its position is often indicated by a constriction. The prothallus consists of parenchyma the axial cells being somewhat elongated; the cells contain abundant starch. A symbiotic fungus is contained in the cells of the lower half; its hyphae often form a close felt around the tubercle. The prothallus is monoecious; the sexual organs are produced in basipetal succession above the meristem. The archegonia have a short, slightly projecting neck, formed of two tiers of cells. The antheridia are sunk in the tissue of the prothallus; their wall is one layer of cells thick. Paraphyses are wanting. The development of the embryo resembles that of *Lycopodium cernuum*, the apex of the stem and the first leaf being derived from the part next the archegonial neck. The embryo is attached to the prothallus by a foot; the first leaf grows vertically; the apex of the stem becomes depressed and enclosed in the first protocorm, which is forced into the soil by the elongation of its pedicel. No root has been noticed during the first year of growth, but rhizoids may be developed on the protocorm. The development of the plant in successive years proceeds in the manner described by other authors for older specimens; even in the third year only a single protophyll may be produced. The author suggests that the prothallus of *Phylloglossum* may be regarded as the simplest known type among Isosporous *Lycopodiaceae*. The latter portion of this paper contains observations on the branching of the axis in the plant of *Phylloglossum* and on the common production of more than one protocorm from a single plant. The author regards the protophylls as of independent origin from the sporophylls and criticises the view that *Phylloglossum* is to be regarded as a reduced rather than as a primitive form.

W. H. Lang.

PIERCE, GEO. J., Studies on the Coast Redwood, *Sequoia Sempervirens* Endl. (Proctor California Academy of Science. Ser. III. II. 1901. p. 83.)

The author describes the formation of white suckers from the stumps of old redwood trees. He finds that the white leaves and stems differ materially from the green suckers of the same locality, particularly in the thinner cellwalls, and in the complete absence of the palisade parenchyma. He ascribes the total absence of chlorophyll to the absence of sufficient warmth at the time the buds start to form the suckers, and discusses this at some length. The white forming sucker derives all of its nutrition from the underground parts of the tree, i. e. it is a distinct parasite, which has lost the faculty for forming chloro-

phyll even after warm weather sets in, because the necessity for such formation is no longer present. The inherited tendency to form chlorophyll is thus counterbalanced by the peculiar action of the environment, which gives the vegetatively produced offspring an abundant food supply. As soon as the stimulus necessary to bring about independent food formation, i. e. dependence upon itself, becomes active, the sucker produced a green leaf. Pierce believes that „the white redwood serves as an index of the relative powers of heredity and of environment, or, more definitely, of heredity and of the influence of, and the power of reaction to, certain stimuli“. He concluded by asking, „May it not be that what we call heredity is really the response to similar stimuli and combinations of stimuli occurring in orderly succession in the course of nature?“

von Schrenk (St. Louis).

LYON, FLORENCE MAY, A study of the sporangia and gametophytes of *Selaginella apus* and *Selaginella rupestris*. (Botanical Gazette. XXXII. p. 124—141, 170—194. Pl. V—IX. Aug.-Sept. 1901.)

Fertilization occurs while the spores are still in the sporangia attached to the fruiting spikes, which fall in autumn in *S. apus* but remain until spring, when fertilization occurs, in *S. rupestris*, seed-like sporangia with well developed embryos bearing cotyledons and root being then formed in this species.

Trelease.

DAWSON, MARIA, On the Economic Importance of Nitragin. (Annals of Botany. Vol. XV. 1901. p. 511.)

In order to determine whether or not nitragin is of practical value in the cultivation of leguminous plants, experiments were made with *Pisum sativum* (1) on sterilized soils, and (2) on unsterilized soils in the open.

As the result of the Examination of about 800 plants grown in various sterilized soils, it was found that the application of nitragin was not beneficial. But the pods borne by plants grown on soil to which nitragin had been added were observed to ripen more quickly than those of plants grown on uninoculated soil, an observation which supports Mattiolo's view that the root-nodules are organs for the elaboration of the albuminous materials required in the formation of seeds.

The plants grown on unsterilized soils showed that inoculation with nitragin caused some increase of weight in the case of gravelly soil: on peat, clay, or loam, inoculation with nitragin proved to be quite useless.

These unfavorable results as to the value of nitragin lead to the conclusion that the nutrition of *Leguminosae* does not merely depend upon the presence or absence of nodule-microbes, but that the relations between these and their host are

controlled by the biological, physical, and chemical conditions prevailing in the soil at any given time. S. H. Vines.

SCHUNCK, C. A., The Yellow Colouring Matters accompanying Chlorophyll, and their Spectroscopic Relations. Part. II. (Proceedings Royal Society. Vol. LXVIII. 1901. p. 474.)

In a previous paper (Proc. Roy. Soc. Vol. LXV. p. 177. 1899) the author had come to the conclusion that all crude alcoholic extracts of healthy green leaves contain two yellow colouring matters: the one, chrysophyll, deposits from the extracts in lustrous red crystals; the other, xanthophyll, is obtained by treating the extracts with animal charcoal in the cold, when the charcoal takes up the chlorophyll and leaves a yellow solution which deposits xanthophyll as an amorphous substance.

In the present paper, the author gives an account of his investigation of the crude yellow solution. It became evident that more than one yellow colouring matter was present in it, and the attempt was made to isolate these substances by means of CS_2 (Sorby's method). Most of the experiments were made with alcoholic extracts of the leaves of *Ficus Carica* and *Ficus repens*: the observations of the absorption-spectra were made by photography.

The crude yellow alcoholic solution generally shows four absorption bands in the violet and ultra-violet between the lines F and L. By agitating the alcoholic solution with successive quantities, each about half its volume, of CS_2 , until no more colouring matter was taken up by the CS_2 , a series of fractionated solutions in CS_2 were obtained, which were evaporated to dryness and the residues redissolved in alcohol. On examining these solutions spectroscopically a series of spectra was obtained from which the author concludes that the crude yellow alcoholic solution is a mixture of chrysophyll and the colouring matter or matters remaining in the alcohol after fractionation, together with the colouring matter formed from the latter by the action of the acid present: and that therefore he was wrong in concluding that the four-banded spectrum of the crude solution represented a single colouring matter to which he restricted the name xanthophyll. He considers that chrysophyll preexists in the leaf, and is not formed from an other colouring matter: he thinks that it corresponds to the orange xanthophyll of Sorby. There is some reason to believe that chrysophyll is really identical with carotin, but the author does not allude to this possibility. S. H. Vines.

DANDENO-JAMES, B., The Application of Normal Solutions to Biological Problems. (Botanical Gazette. XXXII. 1901. p. 229.)

The author defines clearly, Normal Solutions, gram equivalent per liter solutions, and gram molecule per liter solutions, showing that the normal solution of the analytical chemist is the gram equivalent per liter solution; and that the gram molecule solution differs from the gram equivalent solution excepting in the case of monobasic acids and salts. Attention is also called to the fact that, in making solutions, the weighed substance should be dissolved in enough water to make a liter of solution; and not by adding a given weight of substance to a definite volume of water. References are freely made to instances of confusion in regard to the points mentioned above. It is also pointed out that care is necessary in using tables of electrical conductivity for estimating degree of dissociation when using any of the kinds of solutions here described.

von Schrenk (St. Louis).

TOWNSEND, C. O., The effects of Hydrocyanic acid Gas upon Grains and other Seeds. (Botanical Gazette. XXXI. 1901. p. 241—264.)

Verf. beschreibt den Einfluss von Cyangas auf das Keimen von Samen. Er findet, dass trockene Samen ohne Schaden mit diesem Gase behandelt werden können, ohne ihre Keimfähigkeit einzubüssen, wenn sie demselben nicht länger ausgesetzt sind als genügt, um jede Spur von Thierleben zu tödten. Längeres Verweilen in einer Gasatmosphäre schadet bedeutend. Nasse oder feuchte Samen werden sehr viel leichter als trockene Samen beeinflusst, was sich sehr schnell in dem Verlust der Keimungsfähigkeit zeigt; dieser Verlust ist entweder anhaltend oder temporär. Einige erläuternde Figuren sind beigegeben.

von Schrenk (St. Louis).

CLARK, J. F., On the Toxic Value of Mercuric chloride and its Double Salts. (Journal of Physical Chemistry. V. 1901. p. 289.)

Verf. hat die Frage untersucht, ob der Zusatz von verschiedenen Salzen, hauptsächlich Na Cl, die toxischen Eigenschaften einer Hg Cl₂-Lösung erhöht, wie es vielfach behauptet. Der Salzzusatz sollte den Ausfall der Quecksilberprotein-Verbindungen wesentlich erschweren. Verf. fand nach einer sehr ausgedehnten Versuchsreihe, die er fast ausschliesslich mit saprophytischen Pilzen ausführte, dass der Salzzusatz keinesfalls die toxischen Eigenschaften erhöhe. Betreffs einer grossen Anzahl Einzelangaben wird auf das Original verwiesen.

von Schrenk (St. Louis).

DUNSTAN, W. R. and HENRY, T. A., The Nature and Origin of the Poison of *Lotus carabicus* Phil. Trans. R. S. Bd. CCV. 1901. p. 515—533.)

The plant is used in Egypt as fodder for cattle, but just before the ripening of the seeds it is known to be highly poiso-

nous. The authors observed that when the dried unripe plant is crushed with water and allowed to stand for a few hours it develops a strong odor of HCN. This acid was present: as much as 0,345%, whilst in younger plants only 0,263% was obtained. When the plant is extracted with alcohol no prussic acid (HCN) is obtained, nor is any formed when the plant is treated with boiling water. The extracts had considerable reducing action on alkaline copper solutions. From these facts it was inferred that the plant contains a glucoside and an hydrolysing enzyme.

The authors obtained from the alcoholic extract of the plant the glucoside to which they give the name lotusin and the formula $C_{28}H_{31}O_{16}N$. On hydrolysis, lotusin gives rise to dextrose, prussic acid (HCN), and a yellow substance termed lotoflavin ($C_{15}H_{10}O_6$). The authors investigated the compound derived from lotoflavin by various reagents: on treatment with fused potash, phloroglucinol is one of the products, and alkaline liquids cause the formation of lotosinic acid. Lotoflavin is isomeric with two other yellow colouring-matters of this class, viz. fisetin (fustic, *Rhus Citinus*) and luteolin (*Reseda luteola*). The decomposition products obtained with fused potash were found to be identical with those given by Morin for *Morus tinctoria*.

The chloroform-water extract of the plant was found to contain proteolytic and amylolytic enzymes, as well as the enzyme, lotase, which hydrolyses lotusin. Lotusin is not hydrolysed by diastase or invertase, and only slowly by extract of sweet almonds (emulsin): hence lotase would appear to be a specific enzyme for lotusin.

Lotusin and amygdalin are the only glucosides definitely known to produce prussic acid (HCN) on hydrolysis.

S. H. Vines.

BLACKMAN, F. F. and MATTHAEI, G. L. C., On the Reaction of Leaves to Traumatic Stimulation. (Ann. Bot. Vol. XV. 1901. p. 553.)

The authors, in the first place, draw attention to the fact that leaves, provided with moisture, will remain healthy in darkness for a very long time; in the case of *Prunus Lauro-cerasus*, for as many as fifty days. The remarkable vitality of leaves made it possible for the authors to study the effects of injury to them.

If a leaf of *P. Lauro-cerasus* be cut with a sharp knife, no healing reaction follows. The cells that are actually cut through, and those of a few adjacent layers, die but never in sufficient number to produce a visible brown edge to the wound.

If, on the other hand, a sufficient number of cells be killed to produce a brown edge — by a blow, or burning with a hot iron — a peculiar healing reaction follows: the healthy tissues round the wound cut off and exfoliate the injured area so that it falls out leaving a hole in the leaf. The spongy pa-

renchyma divides and grows so as to occlude the intercellular spaces: an absciss-layer is formed along the line of occlusion, by means of which the injured tissue is isolated, when the absciss-layer gives rise to several layers of cuticularised cells forming a callus.

The above results were obtained in the laboratory. When similar injuries were inflicted upon leaves still attached to the plant in the open, no such exfoliation of the injured parts took place: occlusion-tissue was formed, and eventually cork-layers, but no absciss-layer.

The authors conclude that the determining factor of the mode of reaction is the degree of moisture of the air. When, as in the laboratory-experiments, the injured leaves are in a moist atmosphere, the object of the healing reaction is to get rid of the dead tissue; whereas when the atmosphere is dry, the object is to protect the healthy tissue from desiccation as quickly as possible. The observations make it more than ever difficult to distinguish between „callus“ and „wound-cork“.

S. H. Vines.

SMALL, J. K., The flowerless plants (*Cryptogams*) of the synoptic collection. (Journal of the New-York Botanical Garden. II. p. 81—87. Pl. VI—VII. June 1901.)

Account of the *Cryptogams* displayed in the Museum of the New-York Botanical Garden. Trelease.

SCHUH, R. E., Further notes on *Rhodinocladia*. (Rhodora. III. p. 218. Aug. 1901.)

Redescription of a genus allied to *Desmotrichum*, described in the same Journal for June 1900, with description of the original species, *R. Farlowii* and a new species, *R. cylindrica*. — both from the lower New England coast. Trelease.

COLLINS, F. S., Notes on *Algae*. III. (Rhodora. III. p. 132—137. May 1901.)

Critical and distributional notes on *Protoderma marinum*, *Plectonema Nostocorum*, *Ectocarpus fasciculatus abbreviatus*, *Elachista Chondri*, *Actinococcus aggregatus*, *Melobesia Corallinae*, *Ralfsia Borneti*, *Monostroma latissimum*, *Callithamnion tetragonum* and *Lomentaria rosea*; and descriptions of two new species: *Isactis centrifuga* Bornet and *Pleurocapsa crepidinum* Collins, the former from Rhode Island and the latter from Maine. Trelease.

HOWE, M. A., Observations on the algal genera *Acicularia* and *Acetabulum*. (Bulletin of the Torrey Botanical Club. XXVIII. p. 321—334. Pl. 24—25.)

From a developmental study, made on material of *Acicularia Schenckii* collected by the author in Bermuda, the views of Solms-Laubach on the morphological homologies of the disc and its parts are in the main accepted, namely that the disc is not a complicated, aggregation of whorls of primary branches and the sporangia are, with little doubt,

not to be compared with the ordinary verticillate branches or branchlets; and the further conclusion is reached that the hypopeltal process and the distal portion of the coronal process are lateral outgrowths like the sporangium, so that the whole cap, with all its radially arranged parts except the vestibules, corresponds to a single primary whorl of branches.

Trelease.

CURTIS, G. H., Some *Diatomaceae* of Kansas. (Transactions of the Kansas Academy of Science. XVII. p. 67—78. p. 1901.)

Annotated lists of species from several localities, and of those which serve as food of fish in Central Kansas.

Trelease.

RICHARDS, H. M., *Ceramothamnion Codii*, a new rhodophyceous alga. (Bulletin of the Torrey Botanical Club. XXVIII. p. 257—265. Pl. 21—22. May 1901.)

A Bermudan epiphyte growing on *Codium tomentosum*, of similar habit to *Rhodochorton* and with general cell and chromatophore resemblance to *Callithamnion* and polyspores suggestive of those of *Ptilota*.

Trelease.

CANNON, W. A., A note on the bladder Kelp, *Nereocystis Lütkeana*. (Torreya. I. p. 49—52. May 1901.)

Though tough, when subjected to a longitudinal pull the cysts and stem are very brittle when struck, which is connected with its mode of occurrence in places where though subjected to great strain by the waves, a blow is rarely received, while the sea-palm, *Postelsia*, between tides, does not possess this brittleness.

Trelease.

HOWE, M. A., The Allen collection of *Characeae*. (Journal of the New-York Botanical Garden. II. p. 52—54. April 1901.)

Account of some 8000 sheets of *Characeae* accompanied by some 2000 microscopical preparations presented by Dr. J. J. Allen to the New-York Botanical Garden.

Trelease.

MERESCHKOWSKY, C., On *Okedenia* Eul. (Annals and Magazine of Natural History. Vol. 8. No. 47. Nov. 1901. p. 415—423. Pl. VII. fig. in Text.)

The author here revives the genus *Okedenia* of Eulenstein, founded for *Amphipleura inflexa* Bréb., and gives an emended diagnosis of the genus, of which the most important character is the form and position of the chromatophores. These vary in number from 4—38 and are „usually of the shape of the letter H, sometimes rounded, disposed in pairs along the connecting zone rarely along the valves, with a central pyrenoid usually common to each pair“. Besides the original species *Okedenia inflexa*, the author places in this

genus *Navicula scopulorum* (= *N. Johnsonii* W. Sm.) with varieties *fasciculata*, *perlonga*, *belgica*, and *delicatula* nov. var. Two new species are created, *O. pontica* and *O. granulata*. An analytical key to the species and varieties concludes the paper.

Ethel S. Barton.

MERESCHKOWSKY, C., On *Stauronella*, a new genus of Diatoms. (Annals and Magazine of Natural History. Vol. 8. No. 47. Nov. 1901. p. 424—434. pl. VIII. fig. im Text.)

This genus is formed for the reception of *Stauroneis constricta* Ehr. and its varieties, on the character of the endochrome. The chromatophores consist of „two plates disposed transversely along one of the connecting zones; each plate with a conspicuous pyrenoid“. *Stauronella* is nearly allied to *Amphiprora*, and these genera, together with *Auricula*, *Epithemia* and *Amphoropsis*, represent, according to the author, „a remnant of a very old, now almost extinct, group of diatoms“, which he proposes to call *Archaeidae*. This group he regards as being the ancestors of the *Raphideae* and *Carinatae*. The author attributes much importance to a consideration of endochrome in connection with a classification of diatoms; and as the result of a study of not less than 150 living forms of *Naviculaceae* and *Nitzschieae* he states that the endochrome in these two groups is of a diametrically opposed type. The typical number of chromatophores is two in both cases, but those of *Naviculaceae* have a longitudinal disposition, while those of *Nitzschieae* are arranged transversely.

Ethel S. Barton.

VON SCHRENK, H., A disease of the black locust *Robinia pseudacacia*. (Report Missouri Botanical Garden. XII. p. 21—31. pl. 1—3.)

Discussion of the effects of the growth of *Polyporus rimosus*, in connection with the questions of parasitic, saprophytic and hemisaprophytic habit of growth in fungi.

Trelease.

BANNER, H. J., A Preliminary Contribution to a Knowledge of the *Hydnaceae*. (Bulletin of the Torrey Botanical Club. XXVIII. 1901. p. 199.)

Verf. beschreibt, mit Litteraturangabe, kurz 40 Arten von *Hydnum*, der Abtheilung „*Mesopus*“ angehörig. Ein erläuternder Schlüssel vereinfacht die Bestimmung der Arten dieser verworrenen Gattung.

von Schrenk (St. Louis).

DURAND, E. J., Studies in North American *Discomycetes*. I. The Genus *Holwaya* Sacc. (Bulletin of the Torrey Botanical Club. XXVIII. 1901. p. 349—355.)

Verf. beschreibt des längeren die Synonymie einer *Discomyceten*-Art, den *Patellariaceen* angehörig, die er als *Holwaya gigantea* (Pech.) Durand anerkennt. Eine Tafel ist beigegeben.

von Schrenk (St. Louis).

GRIFFITHS, DAVID, Contributions to a better knowledge of the *Pyrenomycetes*. II. A new Ergot. (Bulletin of the Torrey Botanical Club. XXVIII. 1901. p. 236.)

Verf. beschreibt eine neue *Claviceps*-Art, welche auf *Hilaria mutica* und *H. cenchroides* in Cachise Arizona vorkommt. Die eigenthümlich gekrümmten Sclerotien keimen in sehr kurzer Zeit, und bilden schon nach 20 Tagen die reifen Perithechien. Verf. giebt eine ausführliche Beschreibung des Pilzes und benennt denselben *Claviceps cinereum*.

von Schrenk (St. Louis).

BURT, E. A., Structure and Nature of *Tremella mycetophila* Peeh. (Bulletin of the Torrey Botanical Club. XXVIII. 1901. p. 285.)

Dieser Pilz, welcher auf *Collybia dryophila* Wucherungen verursacht, ist als eine der *Thelephoreen* anzusehen und nennt ihn Burt daher *Exobasidium mycetophilum* (Peeh.) Burt. Eine Tafel ist beigegeben.

von Schrenk (St. Louis).

HOLWAY, E. W. D., Mexican Fungi. III. (Botanical Gazette. XXXI. 1901. p. 326.)

Folgende von Dietel beschriebene neue Arten werden angegeben:

Uromyces Celosiae Diet. et Holw. n. sp. auf *Celosia latifolia*.

Uromyces venustus n. sp. auf *Cestrum nitidum*.

Uromyces Oaxacanus n. sp. auf *Jatropha urens* Oaxaca.

Uromyces dolichosporus, n. sp., auf *Tournefortia velutina* Oaxaca.

Uromyces Rubi, n. sp., auf *Rubus*, Cuernavaca.

Uromyces Indigoferae, n. sp., auf *Indigofera Mexicana* Oaxaca.

Puccinia Berberidis-trifoliae, n. sp., auf *Berberis trifolia*.

Puccinia Anisacanthii, n. sp., auf *Anisacanthus*, wahrscheinlich A. Wrightii.

Puccinia Ruelliae-Bourgaei, n. sp., auf *Ruellia Bourgaei*.

Puccinia Marsdeniae, n. sp., auf *Marsdenia Mexicana*.

Puccinia Oaxacana, n. sp., auf *Baccharis hirtella* DC., Oaxaca.

Puccinia Bacchardidis-multiflorae, n. sp., auf *Baccharis multiflora*.

Puccinia Bacchardidis-hirtellae, n. sp., auf *Baccharis hirtella*.

Puccinia subglobosa, n. sp., auf *Viguiera Palmeri*.

Puccinia praemorsa, n. sp., auf *Brickellia veronicaefolia*.

Puccinia inanipes, n. sp., auf *Eupatorium brevipes*.

Puccinia espinosarum, n. sp., auf *Eupatorium espinosarum*.

Puccinia ferox, n. sp., auf *Verbesina diversifolia*.

Puccinia Electrae, n. sp., auf *Electra Galeottii*.

Puccinia Desmanthodii, n. sp., auf *Desmanthodium ovatum*.

Puccinia Iostephane, n. sp., auf *Iostephane heterophylla*?

Puccinia Guardiolae, n. sp., auf *Guardiola Mexicana*.

Puccinia conjuncta, n. sp., auf *Lippia Pringlei*.

Puccinia Coulterophyti, n. sp., auf *Coulterophytum laxum*.

Uredo Lippiae, n. sp., auf *Lippia Pringlei*.

Ravenelia spinulosa, n. sp., auf *Cassia multiflora*.

Endophyllum singulare, n. sp., auf einer *Ericacea*.

Stichospora Mentzeliae, n. sp., auf *Mentzelia hispida*.

Coleosporium Verbesinae, n. sp., auf *Verbesina Virgata*.

Coleosporium paraphysatum, n. sp., auf *Liabum discolor*.

Coleosporium anceps, n. sp., auf *Verbesina sphaerocephala*.

Alle neue Arten sind als von Dietel und Holway anzunehmen.

von Schrenk (St. Louis).

Du COLOMBIER, Contribution à la Flora lichénologique du département du Loiret: Catalogue des Lichens rencontrés aux environs d'Orléans dans un rayon de 8 à 10 kilomètres. (Bulletin de la Société botanique de France. T. XLVIII. Fasc. 3—4. p. 91—94.)

Cette liste comprend 178 espèces ou variétés importantes réparties de la façon suivante:

1 à 14, thalle fruticuleux; 15 à 38, thalle foliacé; 39 à 101, *Lecanorés*; 102 à 130, *Lécidés*; 131 et 132, *Epiconioïdés*; 133 à 150, *Graphidés*; 151 à 170, *Endocarpés*; 171 à 178, Lichens homéomères.

Paul Vuillemin (Nancy).

PAYOT (VÉNANCE) et HARMAND (l'ABBÉ), Lichens recueillis sur le massif du Mont-Blanc. (Bulletin de la Société botanique de France. T. XLVIII. Fasc. 3—4. p. 65—91.)

Les Lichens récoltés principalement par V. Payot dans le massif du Mont-Blanc et déterminés par l'abbé Harmand sont au nombre de 308 espèces, sans compter de nombreuses formes et variétés. La liste est accompagnée d'indications précises d'habitat et de localités.

Nous relevons dans ce catalogue quelques formes nouvelles: *Cetraria islandica* (L.) Ach., var. *minor*, probablement identique à la var. *hypoleuca* Mueller, dont la nom n'est pas justifié; — *Parmelia saxatilis* (L.) Fr., var. *laevis* Nyl., form. *microphylla*; — *Lecanora epixantha* (Ach.) Nyl., var. *intumescens*; — *Lecanora cinerea* (L.) Nyl., form. *tincta*, à thalle rougeâtre; — *Lecidea areolata* Schaer., form. *depauperata*; — *Lecidea geographica* (L.) Fr., form. *inquinata*. Cette dernière forme résulte de la présence d'un Champignon parasite, le *Rhymbocarpus punctiformis* Zopf.

Deux autres Champignons parasites sont signalés: *Endococcus erraticus* (Mass.) Nyl. sur *Lecidea chionophila* et *Sphaeria epicymatia* Nyl. sur les apothécies du *Lecanora scrupulosa*.

Enfin quatre espèces de Lichens paraissent nouvelles. En voici les diagnoses:

No. 190. *Lecanora*? . . . Thalle blanc de lait épais de 1 millimètre environ, irrégulièrement fendillé-aréolé, K + jaune, hyphes I —; hypothalle blanchâtre. Apothécies à disque plan ne dépassant pas le thalle, atteignant 1 millimètre en diamètre ou un peu plus, couvert d'une légère pruine blanchâtre, Ca Cl —, munies d'un bord thallin et d'un bord propre; hypothécium incolore, sommet des paraphyses olivâtre, spores hyalines, simples, longues de 0,010—0,016 et larges de 0,0063.

No. 209. *Lecanora*? . . . Thalle blanchâtre, fragmenté-aréolé, ne dépassant guère 1 millimètre en épaisseur; K —, hyphes I —, hypothalle invisible. Apothécies confluentes, plusieurs sur chaque aréole, très inégales urcéolées, à disque noir, nu, à bord propre, dépourvues de bord thallin visible hypothécium incolore, sommet des paraphyses brunâtre, paraphyses en chapelet, spores hyalines, longues de 0,020—22 et larges de 0,010. Spermogonies non observées.

No. 237. *Lecidea Claudeliana*. — Sur des débris de Mousses, à la Croix-de-Fer; au bois Magnin.

Thalle cendré-blanchâtre, squamuleux, à squamules imbriquées, crénelées, K —. Apothécies noires, convexes, dépassant le thalle, atteignant au plus 0,8 millimètres en diamètre; hypothécium vineux, paraphyses assez épaisses, articulées, spores hyalines, triseptées, longues de 0,0166 et larges de 0,006.

Cette espèce ou sous-espèce est voisine du *L. subnegans* Nyl., dont elle diffère surtout par des spores triseptées.

No. 290. *Lecidea Venantii*. — Sur des roches quartzzeuses, aux Montées.

Thalle cendré-brunâtre, peu épais aréolé, à aréoles petites, K —, Ca Cl —, hypothalle noir, hyphes I —. Apothécies noires, nues, ne dépassant pas 1 millimètre en diamètre, à la fin convexes, immarginées, dépassant le thalle; hypothécium incolore, sommet des paraphyses brunâtre, paraphyses libres, articulées et noueuses vers le sommet, spores d'abord hyalines, puis brun foncé, simples, longues de 0,010—12 et larges de 0,0053—63, gélatine hyméniale I + bleu persistant.

Paul Vuillemin (Nancy).

BRITTON, ELIZABETH E., Mosses of the Catskill mountains, N.-Y. (Torreya. I. p. 84. July 1901.)

Bryum proligerum, *Dicranum viride*, *Zygodon viridissimus*, *Buxbaumia aphylla*, *Bartramia Oederiana*, *Trichostomum tenuirostre*, *Homalia gracilis* and *Bryum capillare*, from Woodland Valley; and *Raphidostegium Jamesii*, *R. laxepatulum*, *Plagiothecium striatellum*, *P. Müllerianum*, *Hylocomium umbratum*, *H. pyrenaicum*, *Dicranum fuscescens* and *D. longifolium*, from Slide Mountain, at an altitude of 3500 ft. Trelease.

WILLIAMS, R. S., An enumeration of the mosses collected. (Bulletin of the New-York Botanical Garden. II. p. 105—148. Pl. 15—24. May 1901.)

An annotated list of mosses from the Klondike region of Alaska and British America. The following species are described as new: *Ditrichum giganteum*, *Bryobrittonia* (n. gen.) *pellucida*, *Bryum Dawsonense*, *B. conditum*, *B. submuticum*, *B. suborbiculare*, *Plagiobryum argenteoides*, *Brachythecium petrophilum* and *Hypnum amblyphyllum*. Trelease.

HOWE, M. A., An enumeration of the *Hepaticae* collected by R. S. Williams, 1898—1899. (Bulletin of the New-York Botanical Garden. II. p. 101—105. Pl. 14. May 1901.)

A report on 24 species from the Yukon region of British America and Alaska *Scapania imbricata* is described and figured as new.

Trelease.

BRITTON, ELIZABETH, G., *Physcomitrium turbinatum* and its variations. (Journal of the New York Botanical Garden. II. p. 72. May 1901.)

The difference between the forms ascribed to differences in temperature and moisture at the time of development.

Trelease.

HOWE, M. A., Remarks on the use of *Funaria hygrometrica* in botanical teaching. (Torreya. I. p. 39—41. April 1901.)

Suggestions of demonstration manipulation.

Trelease.

EVANS, A. W., *Fossombronia salina* in Connecticut. (Rhodora. III. p. 7—10. January 1901.)

Redescription, with spore figure. East Haven, Ct., New Jersey, and Eustis, Fla., are given as localities. Trelease.

HUNTINGTON, J. W., *Webera frolicera* in Amesbury Massachusetts. (Rhodora. III. p. 91—92. April 1901.)

A local abundance, ascribed to vegetative propagation by bulbils, distributed in winter by snow and ice. Trelease.

COLLINS, J. F., Notes on the bryophytes of Maine. II. Katabdin mosses. (Rhodora. III. p. 181—184. June 1901.)

Critical notes on *Amblyostegium varium*, *Catharinea* sp., *Conostomum boreale*, *Cynodontium polycarpum strumiferum*, *Dicranoweisia crispula*, *Dicranum congestum flexicaule*, *D. fulvellum*, *D. fuscescens Eatoni*, *Grimmia Doniana*, *Hypnum montanum*, *Mielichhoferia nitida elongata*, *Pogonatum urnigerum*, *Tayloria tenuis*, *Tetraplodon angustatus* and *Tetradontium Browniana rigidum*. Trelease.

KENNEDY, G. C. and COLLINS, J. F., Bryophytes of Mount Katabdin. (Rhodora. III. p. 177—181. June 1901.)

A list of 61 mosses and 17 liverworts collected in July 1900. Trelease.

HILL, E. J., The rock relations of the walking fern. (Fern Bulletin. IX. p. 55—56. July 1901.)

A discussion of the kind of rock on which *Camptosorus rhizophyllus* grows. Trelease.

EATON, A. A., Our western *Woodwardia*. (Fern Bulletin. IX. p. 86—87. Oct. 1901.)

The Pacific coast species is said to lack the scaly bud characteristic of *W. radicans* and to differ further in form and in being glandular, so that the name *W. spinulosa* is taken up for it. A forma *ramosa* of the species is described. Trelease.

CLUTE, W. N., Fairy rings formed by *Osmunda*. (Fern Bulletin. IX. p. 85—86. Oct. 1901.)

The plants are said to occur on large circles or ellipses. Trelease.

CLUTE, W. N., A new form of *Cystopteris*. (Fern Bulletin. IX. p. 64—65. f. 1—4. July 1901.)

Cystopteris fragilis magnasora, from Great Bend, Pa. Trelease.

FERNALD, M. L., The true *Lycopodium complanatum* and its common American representative. (Rhodora. III. p. 278—281. November 1901.)

An analysis of the characters of *L. complanatum* and *L. complanatum flabelliforme*, which is the New-England form. Trelease.

EATON, A. A., A new variety of *Dryopteris munita*. (Fern Bulletin. IX. p. 7—8. Jan. 1901.)

Polystichum munitum f. *flabellatum*, from the vicinity of Berkley, California. Trelease.

HOUSE, H. D., *Dryopteris simulata* in central New-York. (Fern Bulletin. IX. p. 84—85. Oct. 1901.)

Abundant localities about Oneida, N. Y. Trelease.

GILBERT, B. D., The range of *Polypodium Californicum*. (Fern Bulletin. IX. p. 92. Oct. 1901.)

Costa Rica, in the vicinity of San José, is added to the recorded range of the species. Trelease.

GILBERT, B. D., A new species of *Asplenium*. (Fern Bulletin. IX. p. 53—54. July 1901.)

Asplenium Kamchatkanum, collected on the United States North Pacific exploring expedition, 1853—56, in Okotsk Sea. Its affiliation is said to be with *A. conchatum* of the West Indies. Trelease.

WOOLSON, G. A., A new station for *Asplenium ebenoides*. (Fern Bulletin. IX. p. 89—90. Oct. 1901.)

Asplenium ebenoides is recorded from Procter, Vt., associated with *Asplenium ebeneum* and *Camptosorus rhizophyllus*. Trelease.

SAUNDERS, C. F., Color in young fern fronds. (Fern Bulletin. IX. p. 5—6. January 1901.)

Description of young fronds of *Dryopteris acrostichoides*, *Adiantum pedatum*, *Onoclea sensibilis*, *Pteris aquilina*, *Woodwardia areolata* and *W. virginica*. Trelease.

PARISH, S. B., California fern gossip. (Fern Bulletin. IX. p. 73—77. October 1901.)

Notes on the *Equisetum ramosissimum* of California, arboricolous Californian species of *Polypodium*, *Cheilanthes fibrillosa*, *C. Parishii* and *Polypodium Californicum* and *P. vulgare* as represented in California. Trelease.

MAXON, W. R., Notes on American ferns. IV. (Fern Bulletin. IX. p. 59—60. 1901.)

A record of the disappearance of *Phyllitis* from a former Tennessee station; note on the sweetness of the rootstocks of *Polypodium falcatum*; and a discussion of the synonymy of *Athyrium thelypteroides*. Trelease.

CLUTE, W. N., A new form of *Lycopodium*. (Fern Bulletin. IX. p. 8—9. Jan. 1901.)

L. adpressum f. *polyclavatum* Mc Donald, from Staten Island, N.-Y. Trelease.

ROBINSON, B. L., *Lycopodium clavatum*, var. *monostachyon* in Northern Maine. (Rhodora. III. p. 237—238. Sept. 1901.)

This one-spiked variety is considered to be descended from a recent 2-spiked ancestor, and occasional 2-spiked individuals are recorded.
Trelease.

METCALF, H., Notes on the ferns of Maranocook, Maine. (Rhodora. III. p. 236—237. Sept. 1901.)

A list of eleven species, supplementary to a list published by Davenport in Vol. I. of the same journal.
Trelease.

GILBERT, B. D., Notes on *Lycopodium tristachyum* Prush (*L. chamaecyparissus* A. Br.). (Torreya. I. p. 117—119.)

Differential organographic and biological characters, as contrasted with *L. complanatum*.
Trelease.

DAVENPORT, G. E., Miscellaneous notes on New England ferns and allies. (Rhodora. III. p. 223—225. Sept. 1901.)

Asplenium ebeneum Hortonae is reported from Maryland and Arkansas, in addition to the original station in Vermont; and the erect and apparently inner fertile fronds of *Osmunda* are said to be of origin inferior to the seemingly outer sterile ones, whereas in *Struthiopteris* the reverse is true.
Trelease.

DAVENPORT, G. E., Miscellaneous notes on New England ferns, II. (Rhodora. III. 266—270. November 1901.)

A discussion of the generic status of *Athyrium* and of the form and ciliation of the indusia of *A. filix-foemina*.
Trelease.

GILBERT, B. D., Working list of North American *Pteridophytes* (north of Mexico), together with descriptions of a number of varieties not heretofore published. Published for the editor by L. C. Childs & Son. Utica, N. Y. 1901.

In this list, families, genera, species and varieties are arranged alphabetically, the nomenclature is conservative, and even the less marked varietal forms are included.

Descriptions are given of *Equisetum arvense diffusum* A. A. Eaton, *E. fluviatile intermedium* A. A. Eaton, *E. hiemale* f. *polystachyum* Prayer, *E. hiemale* f. *ramigerum*, A. Br., *E. litorale arvensiforme* A. A. Eaton, *E. variegatum* Jesupi A. A. Eaton, *Isoetes echinospora truncata* A. A. Eaton, *I. melanopoda californica* A. A. Eaton, *I. paupercula* (Eng.) A. A. Eaton, *Osmunda Claytonianae dubia* Grant., *Adiantum Capillus-Veneris* f. *elongatum* Lemmon. *Asplenium anceps* Solander, *Athyrium cyclosorum* Rupr., *A. cyclosorum* f. *Hillii* Gilbert, *A. cyclosorum strictum* Gilbert, *A. filix-foemina elegans* Gilbert, *A. filix-foemina* f. *plano-rhoeticum* Gilbert, *A. filix-foemina polyclados* Moore, *A. filix-foemina* f. *rectangulare* Gilbert, *A. filix-foemina rubellum* Gilbert, *A. filix-foemina stenodon* Moore, *Cryptogramme acrostichoides foveolata* (Rupr.) Gilbert, *Dicksonia pilosiuscula cristata* Davenport, *Nephrodium Bootii* f. *multiflorum* Gilbert, *N. spinulosum fructuosum* Gilbert (*Lastraea dilatata glandulosa* Moore), *Poly-*

podium vulgare Columbianum Gilbert, *Woodsia obtusa nana* Lemmon, and *Woodwardia Virginica* f. *thelypteroides* (Prush) Gilbert. Trelease.

DAVENPORT, G. E., A plumose variety of the ebony spleenwort. (Rhodora. III. p. 1—2. Pl. 22. January 1901.)

Asplenium ebeneum Hortonae n. var. from Brattleben, Vt. Trelease.

DRIGGS, A. W., *Botrychium matricariaefolium* in Connecticut. (Rhodora. III. p. 36. February 1901.)

Reported from West Hartford, on Talcott mountain, at an altitude of 650 feet. Trelease.

OWEN, MARIA L., Ferns of Mt. Toby, Massachusetts. (Rhodora. III. p. 41—43. March 1901.)

A local list: Over 800 individuals of *Botrychium simplex* are noted for a single small area. Trelease.

UNDERWOOD, L. M., An enumeration of the *Pteridophytes* collected by R. S. Williams and J. B. Tarleton. (Bulletin of the New-York Botanical Garden. II. p. 148—149. May 1901.)

Seven ferns, 1 *Equisetum*, 4 *Lycopodiums*, and 2 *Selaginellas*, from the Klondike region of Alaska and British America. Trelease.

MAXON, W. R., A list of the ferns and fern allies of North America, north of Mexico, with principal Synonyms and distribution. (Proceedings of the United States National Museum. XXIII. p. 619—651.) Washington (Government Printing Office) 1901.

This list aims at affording full citations, the more important synonymy, and generally used vernacular names, for the species admitted. The nomenclature adopted is on Neoamerican lines, in this and the estimate of specific and varietal limitations the last edition of Underwoods Our native ferns and their allies being followed in the main. By families, the species recognised are distributed as follows:

Ophioglossaceae 24, *Hymenophyllaceae* 2, *Schizaeaceae* 4, *Osmundaceae* 3, *Ceratopteridaceae* 1, *Polypodiaceae* 163, *Marsileaceae* 6, *Salviniaceae* 3, *Equisetaceae* 14, *Lycopodiaceae* 18, *Selaginellaceae* 17, *Isoetaceae* 26, — or a total of 281 species, with a very few additional varieties.

Trelease.

RENAULT (B.), Sur quelques Fougères hétérospores. (C. R. Académie des Sciences. CXXXIII. p. 648—691. 5 Fig. 21. Octobre 1901.)

L'auteur a observé, dans les sporanges d'une *Lecopteris* du type *Asterotheca*, rencontrée dans les magmas quartzeux de Grand'croix près St. Etienne, des spores de deux sortes: les

unes, mesurant 30 à 35 μ , sont lisses et portent les trois lignes divergentes caractéristiques des macrospores; les autres, de même taille et contenues dans les mêmes sporanges, montrent à leur intérieur un tissu formé de quelques cellules, qui doivent avoir contenu les cellules mères des anthérozoides.

Sur d'autres pinnules, M. Renault a rencontré des sporanges pédicellés, munis d'un anneau longitudinal assez analogue à celui des Larkériées, et renfermant des spores triangulaires à exospore épaisse, marquée de trois lignes radiantes caractéristiques des macrospores.

L'auteur conclut que les Fougères, Eusporangiées et Leptosporangiées, ont eu à l'époque houillère des représentants hétérospores.

R. Zeiller.

COWLES, HENRY, C., The Physiographic Ecology of Chicago and Vicinity; a Study of the Origin, Development, and Classification of Plant Societies. (Contributions from the Hull Botanical Laboratory. XXIV. Bot. Gaz. XXXI. 73—108; 145—182. 1901. With 35 text. figures.)

Difficulties having been found in satisfactorily classifying plant societies into hydrophytes, mesophytes, and Xerophytes, an attempt is made to develop a genetic and dynamic classification. This classification is essentially physiographic, since it is based on the well known laws of topographic change. The tendency of a land mass to approach a base level by the denudation of uplands and by deposition on the lowlands may be expressed in ecological terms as the tendency to approach a uniform ecological condition. In the favorable climate of the northeastern United States the xerophytic uplands and hydrophytic swamps and lakes incident to a young topography tend to become more and more mesophytic. There is then a definite order of succession of plant societies which characterizes the life history of each topographic type, though this order may not be the same in different regions. Locally there may be retrogressive stages of development away from the mesophytic condition. Crustal movements and climatic changes modify but do not essentially alter the laws of physiographic change.

An application of these principles is made for the region about Chicago. Five series are traced from the primeval condition to the mesophytic forest, which is the culminating type in that region. 1) Ravines, whether of rock or clay, are at first xerophytic; on account of favorable conditions they may soon attain a temporary mesophytic condition. Widening and deepening cause semi-xerophytic conditions to recur, but ultimately the gentle slopes of an old topography are covered by mesophytic forms. The flood plains, hydrophytic at the outset, ultimately develop a high grade of mesophytic forest. 2) Undrained depressions may at first contain ponds. By the rapid

encroachment of one zone of vegetation after another the ponds are ultimately transformed into swamps and these become mesophytic prairies or forests. 3) Uplands, whether of rock, sand, or clay, have at first an intensely xerophytic flora. On clay the stages of development are more rapid than on sand or rock, but in all cases alike a mesophytic forest ultimately appears. 4) Lake bluffs represent retrogressive activities, erosion increasing the xerophytic conditions. If erosion ceases, however, one type of vegetation rapidly succeeds another, culminating in the mesophytic forest. 5) As shown in a preceding paper, dune vegetation passes through a number of stages, especially cottonwoods, pines, and oaks, culminating in the typical mesophytic forest of beech and maple.

H. C. Cowles.

COLLIER, A. C., Notes on the vegetation. (Brooks, A. H. A reconnaissance of the Cape Nome and adjacent gold fields of Seward Peninsula, Alaska, in 1900. p. 164—174. Washington, U-S., Geological Survey. 1901.)

Ten lichens, three ferns, and 67 authophytes are recorded, with brief notes on their distribution, economic value, etc. The vegetation is stated to be of an arctic character, though spruce trees (tentatively referred to *Picea Canadensis*) a foot in diameter and 50 ft. high were measured on Ninkluk River.

Trelease.

WHITFORD, H. N., The genetic development of the forests of Northern Michigan; a study in physiographic ecology. (Contributions from the Hull Botanical Laboratory. XXVII. The Botanical Gazette. Vol. XXXI. 1901. p. 289—325. With text figures.)

Three sets of factors control the presence or absence of trees, viz., climatic, ecological, and historical. The climatic factors of heat and temperature bring about the great plant formations such as forest and prairie. The ecological factors, due primarily to topographic diversity, cause the plant society condition. However the topography is constantly changing so there is a readjustment of plant societies to meet the new conditions.

Beginning with areas where vegetation is entirely absent, the successive societies are traced through four series of topographic situations, viz., sand, clay, rock, and swamps. In the first three situations there is a passage from the xerophytic heath, through the coniferous forest to the mesophytic deciduous forest. In the swamp the successive plant zones from the margin to the center encroach upon each other and fill up until the water level is far enough below the surface to allow, first a coniferous growth of tamarack and spruce, and then the deciduous forest of maple and beech. Clearing societies show a similar succession, though here fire weed and birch-poplar growths usually precede the maple-beech combination. In all

cases there is a gradual replacement of the xerophytic and hydrophytic societies by more and more mesophytic societies until the climax forest condition is reached.

H. N. Whitford.

BRAY, WILLIAM L., The Ecological Relations of the Vegetation of Western Texas. (Contributions from the Hull Botanical Laboratory. XXX. Botanical Gazette. XXXII. 1901. p. 99—123; 195—217; 262—291. With 24 text figures.)

The author discusses the climatic and edaphic factors, showing that there are wide variations in temperature from north to south and in altitude, also in moisture from east to west. As a consequence all floristic elements from tropical to „transition“ are represented, as well as a wide variety of ecological climatic formations, from semi-mesophytic forests to arid desert-like areas. The physiographic and geologic provinces are found in general to coincide with characteristic plant formations. The aspect of the region as a whole is xerophytic, though of several grades; mesophytic vegetation is present along streams and on the mountains.

Originally grass formations were the dominant type, and among these the so-called buffalo grass vegetation was the most widespread. As a result of artificial conditions, particularly overpasturage and the checking of fires, there is now going on a rapid and extensive encroachment of ligneous vegetation upon the original grasslands. The xerophytic chaparral thickets in particular are rapidly increasing in area. The natural woody vegetation is subdivided into arborescent and chaparral formations. In general the timber is best developed on stream or mountain slopes, and there are various formations, largely dominated by oaks or conifers. There are two types of chaparral, one Mexican, the other more western in relationship. Other prominent formations are characterized by the dominance of Cacti, Yuccas, and Agaves. Annual species are prominent in the prairie formations.

H. C. Cowles.

The Botany of the Færöes based upon Danish investigations. Part I. Copenhagen (and London). 1901. gr. 8°. 340 pp. Mit 1 Karte, 9 Tafeln und 50 Figuren im Text.

Dieser Band enthält eine historische Einleitung durch Eug. Warming, eine geologisch-geographische Uebersicht durch C. H. Ostenfeld, eine Bearbeitung der Gefäßpflanzen durch denselben, der Moose durch C. Jensen, der Süßwasseralgen durch F. Børgesen, der Süßwasser-*Diatomeen* durch E. Østrup, der Pilze durch E. Rostrup und der Flechten durch J. S. Deichmann Branth. Ein folgender Band wird

die Meeresalgen, das Plankton, die Land- und Meeresvegetation, den Acker- und Gartenbau behandeln. Ueber den Inhalt dieser Beiträge verweisen wir auf die speciellen Referate.

Morten Pedersen Porsild (Kopenhagen).

BECKER, WILHELM, *Ajuga genevensis* und *reptans* L. und ihre Hybriden. (Deutsche botanische Monatsschrift. Jahrgang XIX. 1901. No. 3. 4 pp.)

Sanio kam 1890 zu dem Ergebnisse, *Ajuga reptans* mit *A. genevensis* zu vereinigen. Verf. wies schon 1897 darauf hin, dass eine Vereinigung nicht stattfinden könne und hebt in vorliegender Mittheilung nochmals die constanten Merkmale heraus: *Ajuga genevensis* L. besitzt nur in der Jugend und auch an steinigem, unfruchtbarem Standorte 1—2 blühende Stengel, sonst trifft man mehrere solcher an, die aus den Grundblättern des Hauptstengels (und zwar gleichzeitig mit ihm) entsprossen. Die basalen Blätter sind kleiner als die nächsten Stengelblätter. Die Vermehrung findet durch Wurzelsprossen auf vegetativem Wege statt. *Ajuga reptans* L. treibt immer nur einen blühenden Stengel, dessen grundständige Blätter grösser als die übrigen sind. Die vegetative Vermehrung erfolgt durch Wurzelsprossen.

Erwähnt werden folgende Formen von:

I. *Ajuga genevensis*:

1. var. *longifolia* Beck. (mit Diagnose, Fundorte: S. Bartolomeo di Pesio und Val Rumiana),
2. forma *ramosa* (mit Beschreibung, im Harz),
3. f. *bracteis omnibus late-ovatis integerrimis, foliis integerimis* (Hyllie, flora Scaniae),
4. var. *longifolia* Beck. (in einem Nachtrage beschrieben),
5. flore *roseo* (Harz und Ungarn).

II. *Ajuga reptans*:

1. f. *stolonibus floriferis* (Kamp und Harz),
2. f. *ramosa* (mit Beschreibung, Kamp),
3. flore *roseo* (Thüringen),
4. flore *albo* (Bruneck in Tirol).

Von den Hybriden ist die bekannteste *A. genevensis* × *repens* Lasch, von dem Sanio 2 Formen (a. *reptans*, b. *genevensis*) unterschied. Kerner publicirte 1874 den Bastard *A. hybrida* (der auch bei Sangerhausen vorkommt), Verf. erwähnt noch den neuen Bastard: *A. Oswaldiana* Becker nom. nov., welcher beschrieben wird und am letztgenannten Orte, ferner bei Hütteldorf nächst Wien und bei Liegnitz gefunden wurde. Matouschek, (Reichenberg, Böhmen).

TOURNEY, J. W., An undescribed *Agave* from Arizona. (Report Missouri Botanical Garden. XII. p. 75—76. Pl. 32—33, with an unnumbered insert plate. April 1901.)

A species of the group *filiferae*, from the Santa Catalina Mountains, described under the name *A. Treleasei*. Trelease.

IRISH, H. C., Garden beans cultivated as esculents. (Report Missouri Botanical Garden. XII. p. 81—165. Pl. 38—47. June 1901.)

A botanico-horticultural study of all procurable garden beans, which represent species of *Phaseolus*, *Dolichos*, *Vigna*, *Glycine* and *Vicia*. The many varieties are described, and their seeds figured in photograms, and analytical keys are given to them. A unique feature of the paper is the citation of prelinnean names, and a full index to both common and scientific names is given.

Trelease.

FERGUSON, A. M., Crotons of the United States. (Report Missouri Botanical Garden. XII. p. 33—73. Pl. 4—31. February 1901.)

A synoptical account of all species recognized as occurring in the United States, with keys, citation of the principal literature and localities and illustrations of all but a few of those which are elsewhere figured in ready accessible places.

C. Miquelensis, *C. Floridanus*, *C. glandulosus Shorti*, *C. glandulosus Simpsoni*, *C. glandulosus crenatifolius*, *C. Engelmannii*, *C. Engelmannii albinoides*, *C. Californicus tenuis*, *C. Californicus longipes*, *C. Californicus Mobarensis* and (from Mexico) *C. leucophyllus trisepalis*, here appear for the first time, either as new combinations or the names of new species or varieties.

Trelease.

WILLIAMS, E. F., Tree willows at Fort Kent. Maine. (Rhodora. III. p. 277—278. November 1901.)

S. discolor, *S. balsamifera* and *S. lucida macrophylla* are reported as becoming trees of considerable size.

Trelease.

ROBINSON, B., L., The North American *Euphrasias*. (Rhodora. III. p. 270—276. November 1901.)

The species which are synoptically treated, number seven. The following new names occur: *E. Williamsii*, *E. Randii*, *E. Randii Farlowii* and *E. Americana Canadensis*.

Trelease.

COLLINS, G. N., Seeds of commercial saltbushes. (Bulletin No. 27. U. S. Dept. of Agriculture, Division of Botany. 1901.)

Descriptions and photographic process illustrations of the bract, fruit and seed characters of 22 species of *Atriplex*.

Trelease.

COOK, O. F., The Chayote: a tropical vegetable. (Bulletin No. 28. U. S. Dept. of Agriculture, Division of Botany. 1901.)

An account of *Sechium edule*, with numerous illustrations from photographs.

Trelease.

PIETERS, A. J., The plants of western Lake Erie with observations on their distribution. (Bulletin of the U. S. Fish. Commission for 1901. p. 57—79. Fig. a—k. Pl. 11—20.)

This paper presents the results of work done on phanerogams, *Characeae* and desmids in 1898, at Pubin Bay, Ohio, and deals with biological considerations, ecological anatomy, and distribution.

Trelease.

DEANE, W., Albino fruits of *Vacciniums* in New England. (Rhodora. III. p. 263—266. Nov. 1901.)

New names are: *Vaccinium pennsylvanicum* f. *leucocarpum*, *V. corymbosum atrococcum* f. *leucococcum* and *V. Canadense* f. *chilococcum*.

Trelease.

OWEN, J[EAN] A. [= Mrs. VISGER] and **BOULGER, G[EOURGE] S[IMONDS]**, The country month by month. A new edition, with notes by the late [Thomas Lyttleton Powys, 4th Baron] Lilford. 8°. (21 cm.) London (Duckworth and Co.) „1902“ [1901].

Descriptive of the plants, animals, and insects, as they appear in Great Britain during the circle of the year, from January to December. Mr. Boulger is entirely responsible for the notices of the plants, while Lord Lilford's notes are ornithological.

B. Daydon Jackson (London).

CURTIS's Botanical Magazine. Comprising the plants of the Royal Gardens of Kew, and of other botanical establishments in Great Britain, with suitable descriptions: by Sir Joseph Dalton Hooker, late Director of the Royal Botanic Gardens of Kew. Third series. Vol. LVII. September 1901.

Contents:

- Tab. 7792. *Epidendrum osmanthum* Rodr. — Brazil.
- „ 7793. *Iris Tauri*, Siehe. — Asia minor.
- „ 7794. *Oxalis dispar*, N. E. Brown, n. sp. — Guiana.
- „ 7795. *Impatiens Thomsoni*, Hook. f. — W. Himalaya.
- „ 7796. *Arctotis Gumbletoni*, Hook. f., n. sp. — Namaqualand.

— October 1901.

- Tab. 7797. *Exorhiza Wendlandiana*, Becc. — Fiji.
- „ 7798. *Habenaria Lugardii*, Rolfe. — Ngamiland.
- „ 7799. *Cineraria pentactina*, Hook. f., n. sp. — S. Africa?
- „ 7800. *Calorhabdos cauloptera*, Hance. — China.
- „ 7801. *Rubus palmatus*, Thunb. — Japan, China.

— November 1901.

- Tab. 7802. *Musa oleracea*, Vieill. — N. Caledonia.
- „ 7803. *Senecio magnificus*, F. Muell. — Australia.
- „ 7804. *Liparis tricallosa*, Reichb. f. — Malaya.
- „ 7805. *Trevoria Chloris*, F. C. Lehm. — Colombia.
- „ 7806. *Syringa oblata*, Lindl. — China.

B. Daydon Jackson (London).

BAGNALL, JAMES E[USTAGE], The flora of Staffordshire. (Issued as a Supplement to the „Journal of Botany“. 1901.) 8°. (23 cm.) 74 pp. London (West, Newman and Co.) 1901.

Completed in the October part of the Journal from page 65, with *Festuca rubra* as the first plant, to *Nitella opaca* as the last. The enumeration of species is followed by a summary showing 865 notices, but with every degree of naturalization and 150 varieties, summed up into a total of 1164. „Botanical investigation in staffordshire“ provides us with a succinct statement of the various botanists who have occupied themselves with the county flora, from John Ray to those now living the whole work is extremely condensed.

———— B. Daydon Jackson (London).

PRAEGER, ROBERT LLOYD, Irish Topographical Botany. (Dublin, Proc. Royal Irish Acad. Ser. III. 7. 1901.) 8°. CLXXXVIII, 410 pp. 6 maps.

This volume is designed to accomplish for Ireland, what H. C. Watson's „Topographical Botany“ did for Great Britain, that is, to trace the distribution of every native plant through every county, or where the county is too large a unit, into divisions of the same, termed vice-counties. The total flora is reckoned at 1019 species.

———— B. Daydon Jackson (London).

ELLIOT, G[EOURGE] F[RANCIS] SCOTT and others, Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie and J. Barclay Murdoch. Glasgow, published by the Local Commission for the Meeting of the British Association. 1901. 8°. (21 cm.)

The botanical contents of this volume are as follows: there are no new species described, as they are chiefly lists under the respective headings.

Botany (an introduction to that portion) by G. F. S. Elliot, p. 1—3; History of Botany in Glasgow, by Prof. F. O. Bower, p. 3—5; The Phyto-plankton of the Clyde sea-area, by G. Murray and V. H. Blackman, p. 6—7; Freshwater Algae, by G. F. S. Elliot, p. 8—15; Marine Algae, by E. A. L. Batters, p. 16—30; Diatoms, by F. Comber, p. 31—48; *Characeae*, by P. Ewing, p. 49; Lichens, by G. F. S. Elliot, p. 50—60; Fungi (microscopic) by D. A. Boyd, p. 61—77; *Hymenomycetes* and *Gasteromycetes*, by W. Stewart, p. 78—92; *Hepaticae*, by P. Ewing, p. 93—95; Mosses, by J. Murray (of Carlisle), p. 96—105; Ferns and New Allies, by W. Stewart, p. 106—109; Phanerogams, by P. Ewing, p. 110—130; Measurements of notable trees, by J. Renwick and R. Mc Kay, p. 131—147; The *Carboniferous* fossil plants of the Clyde Basin, by R. Kidston, p. 468—476; The post-drift fossils of the Clyde drainage area at low levels, by J. Smith (of Kilwinning), J. Scott, and J. Steel (Algae, Musci and Phanerogams, incertae sedis . . . Confervoideae, etc. by J. Smith), p. 528—538.

———— B. Daydon Jackson (London).

MARQUAND, ERNEST DAVID, Flora of Guernsey and the lesser Channel Islands, namely, Alderney, Sark, Herm, Jechou, and the adjacent islets. With five maps. 8° (22 cm). VIII and 501 pp. London (Dulau & Co.) 1901.

An introduction of seven pages gives a short account of the history of the islands in question, forming in legal phrase the „Bailiwick of Guernsey“. The largest of the channel Islands, Jersey, is expressly excluded from this volume. The plan is explained as supplying separate lists for each island, with a summary showing a total of 2653 phanerogams furnishing 828 species, pteridophytes 29, bryophytes 197, Fungi 624, Lichens 334 and Algae 641. Each island has an opening description, remarks on climate, geology, prevalence of vegetation and the like. The indexes which close the volume, extend to seventeen pages.

B. Daydon Jackson (London).

DEANE, HENRY and MAIDEN, J[OSEPH] H[ENRY], Observations on the Eucalypts of New-South-Wales. (Sydney, Proceedings Linnean Society, N.-S.-Wales. XXVI. 1901. p. 122—144.)

Chiefly observations on the varying forms of the fruit in the genus *Eucalyptus* and the characters thereby afforded, with the description of a new species, *E. fastigiata*, Deane et Maiden, p. 123.

B. Daydon Jackson (London).

New Orchids. — Decade 25. (Kew Bulletin. London 1901. p. 146—150. nn. 241—250.)

Descriptions by Mr. R. A. Rolfe of novelties from various countries as noted thus:

Masdevallia venosa Colombia, *Dendrobium capituliflorum* New-Guinea, *D. puniceum* New-Guinea, *D. quinarium* New-Guinea, *D. inaequale* New-Guinea, *Cirrhopetalum appendiculatum* India, *Panisea tricallosa* Assam, *Catasetum quadridens* Hab.?, *Ornithocephalus multiflorus* Brazil, *Aëranthes caudata* Madagascar.

B. Daydon Jackson (London).

Decades Kewenses plantarum novarum in Herbario Horti Regii conservatarum. (Kew Bulletin. p. 138—145. Decades XXXIV—XXXV. nn. 331—350. London 1901.)

Contributions of new species, with descriptions mostly by members of the staff, with some added by experts working in the Herbarium. The new plants are as under:

Pterospermum Proteus Burkill, China; *Oxalis dispar* N. E. Brown, Guiana (described in the „Botanical Magazine“ in the previous month, September); *Dioclea megacarpa* Rolfe, Tropical America; *Sophora Bakeri* C. B. Clarke, India; *Begonia peristegia* Stapf, Brazil; *Acomis Lesteri* Burkill, Australia; *Hoya subcalva* Burkill, New-Guinea; *Ceropegia perforata* N. E. Brown, New-Guinea; *Echidnopsis Bentii* N. E. Brown (an earlier description will be found in the „Botanical Magazine“, tab. 7760), Arabia; *Caralluma torta* N. E. Brown, Arabia?; *Boea hians*, Burkill, New-Guinea; *Clerodendron Curtisii* H. H. W. Pearson, Malaya; *Aristolochia gracillima* Hemsl., China; *Elatostema peltatum* Hemsl., Fiji; *Hippeastrum teretifolium* C. H. Wright, Uruguay; *Cheilanthes trifurcata* Baker, Brazil; *Asplenium macrodictyon* Baker, Columbia; *A. Wallisii*, Baker, Columbia; *Polypodium Bangii* Baker, Bolivia; *Acrostichum celebicum* Baker, Celebes.

B. Daydon Jackson (London).

Diagnoses Africanæ, XIII. Kew Bull., London, 1901. p. 119—138.

Short descriptions by various members of the staff of the Herbarium, Royal Botanic Gardens Kew, of plants recently determined at the establishment; the numbers run from 698 to 755, and novelties are as follows.

Rhopalandria lobata C. H. Wright, Gold Coast; *Hugonia obtusifolia* C. H. Wright, Cameroons; *Geranium Brycei*, N. E. Brown, Basutoland; *G. multisetum* N. E. Brown, Basutoland; *Buchenroedera glabriflora* N. E. Brown, Cape Colony; *Melolobium Burchellii* N. E. Brown, Cape Colony; *Crotalaria minor* C. H. Wright; Shiré Highlands; *Vigna nuda* N. E. Brown, Rhodesia; *Cliffortia alata* N. E. Brown, Cape Colony; *C. Galpini* N. E. Brown, Cape Colony; *Crassula variabilis* N. E. Brown, Cape Colony; *Cassipourea schizocalyx* C. H. Wright, Gaboon; *Pentas Wyliei* N. E. Brown, Zululand; *Randia purpureo-maculata* C. H. Wright, Old Calabar; *Felicia lutea* N. E. Brown; Zululand; *Helichrysum plantaginifolium* C. H. Wright, Central Africa; *Macowanina glandulosa* N. E. Brown, Natal; *M. pulvinaris* N. E. Brown, Cape Colony; *Senecio viscidus* N. E. Brown, Natal; *Euryops floribundus* N. E. Brown, Cape Colony; *Osteospermum glabrum* N. E. Brown, Cape Colony; *Ursinia alpina* N. E. Brown, Natal; *Berkleya bilabiata* N. E. Brown, Natal; *B. nivea* N. E. Brown, Transvaal; *B. spinulosa* N. E. Brown, Cape Colony; *Anagallis Haningtonii* Baker, Central Africa; *Sebaea humilis* N. E. Brown, Cape Colony; *S. laxa* N. E. Brown, Cape Colony; *Phyllopodium alpinum* N. E. Brown, Cape Colony; *Chaenostoma subnudum* N. E. Brown, Cape Colony; *Hyobanche Barklyi* N. E. Brown, Cape Colony; *H. rubra* N. E. Brown, Cape Colony; *Rhamphicarpa montana* N. E. Brown, Matabeland, Basutoland; *Tecoma Brycei* N. E. Brown, Mashonaland; *Plectranthus albo-coeruleus* N. E. Brown, Nyasaland, Zomba; *Salvia Burchellii* N. E. Brown, Cape Colony; *Stachys albiflora* N. E. Brown, Natal; *S. parilis* N. E. Brown, Natal; *Protea curvata* N. E. Brown, Transvaal; *P. subvestita* N. E. Brown, Cape Colony; *Arthrosolen fraternus* N. E. Brown, Cape Colony; *Lachnaea passerinoides* N. E. Brown, Cape Colony; *Euphorbia calabarica* Burkill, Old Calabar; *Synadenium Cameronii* N. E. Brown, Nyasaland; *Bobartia gracilis* Baker, Cape Colony; *Asparagus longipes* Baker, Cameroons; *Kniphofia longiflora* Baker, Natal; *Aloë Lugardiana* Baker, Rhodesia; *A. Galpini* Baker, Cape Colony; *A. Lastii* Baker, Zanzibar; *A. somaliensis* C. H. Wright, Somaliland; *Tulbaghia campanulata* N. E. Brown, Cape Colony; *Dipeadi brevipes* Baker, Rhodesia; *Ornithogalum tenuipes* C. H. Wright, Cape Colony; *Gleichenia elongata* Baker, Uganda; *Asplenium efulense* Baker, Cameroons; *A. ruwenzoriense* Baker, Uganda, Ruwenzori; *Lygodium Brycei* Baker, Rhodesia. B. Daydon Jackson (London).

WILLIAMS, FREDERIC NEWTON, *Prodromus florae britannicae*. Part. 2. including 29 genera of *Asteraceae* (or *Compositae*.) [Brentford.] 8°. (24 cm.) p. 17—74. November 1901.

This contains full descriptions in Latin of all the species and varieties known to occur in Britain, with critical remarks on the same. The part begins with *Antennaria* and ends with *Crepis biennis* Linn. B. Daydon Jackson (London).

ROGERS, WILLIAM MOYLE, *Some North-east Ireland Rubi*. (Irish Naturalist Dublin. X. 1901. p. 213—220.)

Gives an account of the fruticose *Rubi* found on a visit to Ireland, with contributions from others, principally in the coun-

tries Down, Armagh and Antrim. Two species „or subspecies“ of the group *Egregii* are described, namely:

Rubus Lettii, p. 216 and *R. dunensis*, p. 217, other subspecies are *R. Drejeri* subsp. *hibernicus*, p. 217; *R. anglosaxonicus*, subsp. *vestitiformis*, p. 217; *R. Radula*, subsp. *echinatoides*, p. 219; *R. Koehleri*, subsp. *dasyphyllus*, p. 219.

Practically the same enumeration appears in Journ. Botan. London. XXXIX. 1901. p. 378—384.

B. Daydon Jackson (London).

MOORE, SPENCER LE M[ARCHANT], L'Héritier's species of *Relhania*. (Journal Botany, London. XXXIX. 1901. p. 386—389.)

The species of this genus collected by Masson, and preserved in Sir Joseph Banks' herbarium, were studied by L'Héritier, and published in his „Sertum anglicum“. The brevity of his descriptions have since caused many of them to be misunderstood, consequently, the author has re-examined the type material, and described again those which seemed to need that care. Sixteen species are thus reviewed.

B. Daydon Jackson (London).

RENDLE, ALFRED BARTON, Notes on *Trillium*. (Journal of Botany, London. XXXIX. 1901. p. 321—335. plate 426.)

A review of many species of the genus, though not of the whole, clearing up some doubtful points of synonymy, based upon examination of the types of the older authors, and supplemented by fresh material in cultivation. Sixteen species are critically reviewed of which two are now described for the first time, these being *T. Rugelii*, from N. Carolina, p. 331; and *T. affine*, from Georgia, p. 334, both collected by Rugel.

B. Daydon Jackson (London).

HIERN, W[ILLIAM] P[HILIP], *Limosella aquatica* L. var. *tenuifolia* Hook. f. (Journal of Botany, London. XXXIX. 1901. p. 336—339.)

A minute description of a form found in Wales, with its synonymy, and a clavis to the forms of the genus; a figure is given of the plant which gave rise to the article.

B. Daydon Jackson (London).

Report of the Botanical Work Committee. Journal of Botany, London. XXXIX. 1901. p. 305—315.

A reprint of the Report of Government Committee, which was constituted to enquire into the Botanical Work and the Collections at the British Museum, and at the Royal Botanic Gardens, Kew. This Report with minutes of evidence and appendices, was issued during last summer by the Stationery Office as a Blue Book of 218 pages, printed by order of the House of Commons, and contains much official information concerning the two institutions named. This reprint is slightly abridged by omitting certain portions.

B. Daydon Jackson (London).

WILLIAMS FREDERIC N[EWTON], On *Ianthé*, a genus of *Hypoxidaceae*. (Journal of Botany, London. XXXIX. 1901. p. 289—294. plate 425.)

A revision of a group of plants including *Fabricia* Thunb. in part, and *Hypoxis*, section *Ianthé*. Most of the species are found in Cape Colony, a few in Australia and Tasmania, and one in New-Zealand. The author gives the history of the genus, which was first defined by Salisbury and published long after his death, in 1866, an analytical clavis, and a provisional list of species, those renamed are as under.

Transferred from *Fabricia*, are the two cited by Salisbury as *I. alba* and *I. serrata*; from *Hypoxis*, *I. linearis* and *I. ovata*, also by Salisbury, the rest are due to the author, namely, *I. aquatica*, *I. curculigoides*, *I. glabella*, *I. gracilipes*, *I. leptantha*, *I. Maximiliani*, *I. minuta*, *I. monophylla*, *I. occidentalis*, *I. pusilla*, *I. Schlechteri*, *I. stellata* and *I. umbralicola*. Of *I. stellata* a photographic reproduction is given from the specimen in the herbarium of Linnaeus.

B. Daydon Jackson (London).

TRAIL, JAMES W[ILLIAM] H[ELENIUS], Progress of botany in Scotland. (Annals of the Scottish Natural History Society. Edinburgh. 1901. p. 217—227.)

The author first gives a short account of the early workers on the local flora down to the present day, with its specialised methods, in conclusion suggesting lines of further study, such as the critical examination of the flora in comparison with continental floras, distribution in space and in altitude, with graphic methods of tabulating the results; natural associations of plants and other oecologic data, diseases, folk-lore of plants, and early instruction in schools of the objects in nature which surround them.

B. Daydon Jackson (London).

BROWN, N. E., New or noteworthy plants. *Cotyledon nana* N. E. Brown. (Gard. Chron. London. Ser. 3, 30. p. 270. 1901.)

Described from a plant sent from south Africa by Prof. Mac Owan to Kew, where it has recently flowered; it is near *C. hemisphaerica* Linn., but has smaller leaves entirely destitute of any apiculus, and are yellowish green in tint.

B. Daydon Jackson (London).

BROWN, N. E., New or noteworthy plants. *Stapelia maculosoides* N. E. Brown. (Gard. Chron. London. Ser. 3, 30. p. 270. 1901.)

Near *S. maculosa* Jacq., but without raised annulus on the disc and differing in coronal lobes and stems.

B. Daydon Jackson (London).

BROWN, N. E., New or noteworthy plants. *Ceropegia Lugardae*. (Gard. Chron. London, Ser. 3, 30. p. 302. 1901.)

Discovered near Lake Nyami by Mrs. Lugard in 1898, grown from seeds presented to Kew by Capt. Lugard, flowered in October 1901. It belongs to the same group as *C. Thwaitesii* Hook., but the flowers different in colour.

B. Daydon Jackson (London).

- M, J. M.,** New or noteworthy Plants. *Cyrila racemiflora*. (Gard. Chron. London. Ser. 3, 30. 1901. p. 198. fig. 61.)

Article signed by the initials of Dr. M. J. Masters giving a full description of the shrub, its history and synonymy, with a figure of a flowering specimen.
B. Daydon Jackson (London).

- RENDLE, A. B.,** New or noteworthy plants. *Hyssopus officinalis* L. var. *grandiflorus* Rendle var. nov. (Gard. Chron. London. Ser. 3, 30. 1901. p. 386.)

A striking, variety characterised by the diffuse flowering shoots, lax partial inflorescences and especially by the large open flowers.
B. Daydon Jackson (London).

- RENDLE, A. B.,** New or noteworthy plants. *Aster subcoerulea* sp. nov. S. Moore. (Gard. Chron. London. Ser. 3, 30. 1901. p. 385.)

A new species from Hazara, North Western India the description drawn up from specimens cultivated by Herr Max Leichtlin.
B. Daydon Jackson (London).

- BROWN, N. E.,** New or noteworthy plants; continued *Sempervivum velutinum* N. E. Brown. (Gard. Chron. London. Ser. 3, 30. 1901. p. 318.)

Of unknown origin, but has been in cultivation since 1824; probably from the Madeiran or Cape de Verd region. Affinities not indicated.
B. Daydon Jackson (London).

- MENDEL, GREGOR,** Experiments in Hybridisation. (Gard. Chron. London. Ser. 3, 30. 1901. p. 226—227.)

An abstract of the translation issued in the Journal of the Royal Horticultural Society, 26. 1901. p. 1—32.
B. Daydon Jackson (London).

- German S[outh] W[est] Africa.** (Gard. Chron. London. Ser. 3, 30. 1901. p. 230.)

Notes on the flora of Brakwater, in German South West Africa contributed by Herr Dinter, from his article in the Supplement to No. 23 of the „Windhoecker Anzeiger“.
B. Daydon Jackson (London).

- Obituary Davidson, George.** (Gard. Chron. London. Ser. 3, 30. 1901. p. 233.)

A diatomist and investigator of the „Kieselguhr“ deposits in the Loch of Kinnard, near Dinnet, a soft stone largely used in the manufacture of dynamite.
B. Daydon Jackson (London).

- HEMSLEY, W[ILLIAM] BOTTING,** *Cydonia sinensis*. (Garden, London. Ser. 60. 1901. p. 248—249.)

A reprint from Kew Bulletin, no. 155—156, p. 224—225 issued in July 1901; it clears up some points of synonymy.
B. Daydon Jackson (London).

MOLL, J. W., Over een toestel om het Projectiemicroscop op afstand scherp te stellen. (Verslagen der Koninklyke Academie van Wetenschappen te Amsterdam. 1901. p. 106.)

Im Botanischen Laboratorium der Universität Groningen befindet sich ein Projectionsmikroskop, das Vergrößerungen von 5000 Mal und mehr liefern kann. Bei solchen starken Vergrößerungen ist es speciell nothwendig, bestimmte Theile des Präparats sehr scharf einstellen zu können, und muss der Demonstrator, der bei dem, das Bild auffangenden, Schirm steht, im Stande sein, die Mikrometerschraube fortwährend spielen zu lassen, gerade so, wie man das beim gewöhnlichen Mikroskopiren macht. Im Groninger Laboratorium sind Katheder und Projectionsapparate 6 Meter von einander entfernt, während ausserdem die Projectionsapparate sich in einer vom Auditorium abgetrennten Räumlichkeit befinden.

Vorliegende Arbeit beschreibt nun, mit einer Tafel erläutert, ein von Moll ausgedachtes Verfahren, wodurch das scharfe Einstellen leicht und sicher geschieht. Die Details sind im Original nachzusehen. Doch möchte ich darauf hinweisen, dass Verf. die Frage dadurch löst, dass er das Ocular dem Objectif näher bringt oder weiter davon entfernt, wie solches beim gewöhnlichen Mikroskopiren schon von Ranvier empfohlen ist. (Ranvier, Technisches Lehrbuch.)

Goethart.

Inhalt.

- Bagnall**, The flora of Staffordshire, p. 57.
Banher, A Preliminary Contribution to a Knowledge of the Hydnaceae, p. 43.
Becker, *Ajuga genevensis* und reptans L. und ihre Hybriden, p. 54.
Blackman and Matthaei, On the Reaction of Leaves to Traumatic Stimulation, p. 40.
The Botany of the Færøes based upon Danish investigations, Part I., p. 53.
Bray, The Ecological Relations of the Vegetation of Western Texas, p. 53.
Britton, Mosses of the Catskill mountains, N.-Y., p. 46.
 —, *Physcomitrium turbinatum* and its variations, p. 46.
Brown, New or noteworthy plants. *Cotyledon nana* N. E. Brown, p. 61.
 —, New or noteworthy plants. *Stapelia maculosoides* N. E. Brown, p. 61.
 —, New or noteworthy plants. *Ceropegia Lugardae*, p. 61.
 —, New or noteworthy plants; continued *Sempervivum velutinum* N. E. Brown, p. 62.
Burt, Structure and Nature of *Tremella mycetophila* Peeh., p. 44.
Cannon, A note on the bladder Kelp, *Neoreocystis Lütkeana*, p. 42.
Clark, On the Toxic Value of Mercuric chloride and its Double Salts, p. 39.
Clute, Fairy rings formed by *Osmunda* p. 47.
 —, A new form of *Cystopteris*, p. 47.
 —, A new form of *Lycopodium*, p. 48.
Collier, Notes on the vegetation, p. 52.
Collins, Notes on Algae III., p. 41.
 —, Notes on the bryophytes of Maine. II. Katadin mosses, p. 47.
 —, Seeds of commercial saltbushes, p. 55.
du Colombier, Contribution à la Flore lichénologique du département du Loir et: Catalogue des Lichens rencontrés aux environs d'Orléans dans un rayon de 8 à 10 kilomètres, p. 45.
Cook, The Chayote: a tropical vegetable, p. 55.
Cowles, The Physiographic Ecology of Chicago and Vicinity: a Study of the Origin, Development and Classification of Plant Societies, p. 51.
Curtis, Some Diatomaceae of Kansas, p. 42.
Curtis Botanical Magazine. Comprising the plants of the Royal Gardens of Kew, and of other botanical establishments in Great Britain, with suitable descriptions: by Sir Joseph Dalton Hooker, late Director of the Royal Botanic Gardens of Kew, p. 56.
Dandeno-James, The Application of Normal Solutions to Biological Problems, p. 38.
Davenport, Miscellaneous notes on New-England ferns and allies, p. 49.
 —, Miscellaneous notes on New England ferns. II., p. 49.
 —, A plumose variety of the ebony spleenwort, p. 50.
Dawson, On the Economic Importance of Nitragin, p. 37.

- Deane**, Albino fruits of *Vacciniums* in New-England, p. 56.
- and **Malden**, Observations on the Eucalypts of New-South-Wales, p. 58.
- Decades Kewenses** plantarum novarum in Herbario Horti Regii conservatarum, p. 58.
- Diagnoses Africanæ**, XIII., p. 59.
- Driggs**, *Botrychium matricariaefolium* in Connecticut, p. 50.
- Dunstan and Henry**, The Nature and Origin of the Poison of *Lotus carabicus*, p. 39.
- Durand**, Studies in North American Discomycetes. I. The Genus *Holwaya* Sacc., p. 43.
- Eaton**, Our western Woodwardia, p. 47.
- , A new variety of *Dryopteris munita*, p. 48.
- Elliot, Scott** and others, Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie and J. Barclay Murdoch, p. 57.
- Evans**, *Fossombronina salina* in Connecticut, p. 55.
- Ferguson**, *Crotons* of the United States, p. 47.
- Fernald**, The true *Lycopodium complanatum* and its common American representative, p. 47.
- German [outh] W[est] Africa, p. 62.
- Gilbert**, The range of *Polypodium Californicum*, p. 48.
- , A new species of *Asplenium*, p. 48.
- , Notes on *Lycopodium tristachyum* Prush. (*L. chamaecyparissus* A. Br.), p. 49.
- , Working list of North American Pteridophytes (north of Mexico) together with descriptions of a number of varieties not heretofore published, p. 49.
- Griffiths**, Contributions to a better knowledge of the Pyrenomycetes. II. A new Ergot, p. 44.
- Hemsley**, *Cydonia sinensis*, p. 62.
- Hiern**, *Limosella aquatica* L. var. *tenuifolia* Hook. f., p. 60.
- Hill**, The rock relations of the walking fern, p. 47.
- Holway**, Mexican Fungi, III., p. 44.
- House**, *Dryopteris simulata* in central New-York, p. 48.
- Howe**, Observations on the algal genera *Acicularia* and *Acetabulum*, p. 41.
- , The Allen collection of Characeae, p. 42.
- , An enumeration of the Hepaticae collected by R. S. Williams, 1898—1899, p. 46.
- , Remarks on the use of *Funaria hygrometrica* in botanical teaching, p. 46.
- Huntington**, *Webera fröhrigera* in Amesbury Massachusetts, p. 47.
- Irish**, Garden beans cultivated as esculents, p. 55.
- Kennedy and Collins**, Bryophytes of Mount Katahdin, p. 47.
- Korschinsky**, Heterogenesis und Evolution, ein Beitrag zur Entstehung der Arten, p. 33.
- Lyon**, A study of the sporangia and gametophytes of *Selaginella apus* and *Selaginella rupestris*, p. 37.
- Marquand**, Flora of Guernsey and the lesser Channel Islands, namely, Alderney, Sark, Herm, Jethou, and the adjacent islets. With five maps, p. 57.
- Maxon**, Notes on American ferns IV., p. 48.
- , A list of the ferns and fern allies of North America, north of Mexico, with principal Synonyms and distribution, p. 50.
- Mendel**, Experiments in Hybridisation, p. 62.
- Mereschkowsky**, On *Okenia* Eul., p. 42.
- , On *Stauronella*, a new genus of Diatoms, p. 43.
- Metcalf**, Notes on the ferns of Maranocook, Maine, p. 49.
- M. J. M.**, New or noteworthy plants. *Cyrila racemiflora*, p. 62.
- Moll**, Over een toestel om het Projectiemi-croscop op afstand scherp te stellen, p. 63.
- Moore**, L'Héritier's species of *Relhania*, p. 60.
- New Orchids**. — Decade 25, p. 58.
- Obituary Davidson, George, p. 62.
- Owen**, Ferns of Mt. Toby, Massachusetts, p. 50.
- and **Boulger**, The country month by month. A new edition, with notes by the late [Thomas Lyttleton Powy's, 4th Baron] Lilford, p. 56.
- Parish**, California fern gossip, p. 48.
- Payot et Harmand**, Lichens recueillis sur le massif du Mont-Blanc, p. 45.
- Petersen**, Diagnostisk Vednatomi af N. V. Europas Trær og Buske, p. 34.
- , Til Begrebet Trakeide. Mit Resumé: Sur les trachéides de **Sanio**, p. 35.
- Pierce**, Studies on the Coast Redwood, *Sequoia sempervirens* Endl., p. 36.
- Pieters**, The plants of western Lake Erie with observations on their distribution, p. 56.
- Praeger**, Irish Topographical Botany, p. 57.
- Renault**, Sur quelques Fougères hétérospores, p. 50.
- Rendle**, Notes on *Trillium*, p. 60.
- , New or noteworthy plants. *Hysopus officinalis* L. var. *grandiflorus* Rendle var. nov., p. 62.
- , New or noteworthy plants. *Aster subcoerulea* sp. nov. S. Moore, p. 62.
- Report of the Botanical Work Committee**, p. 60.
- Richards**, *Ceramothamnion Codii*, a new rhodophyceous alga, p. 42.
- Robinson**, *Lycopodium clavatum*, var. *monostachyon* in Northern Maine, p. 49.
- , The North American *Euphrasias*, p. 55.
- Rogers**, Some North-east Ireland Rubi, p. 59.
- Saunders**, Color in young fern fronds, p. 48.
- Schuh**, Further notes on *Rhodinocladia*, p. 41.
- Schunck**, The Yellow Colouring Matters accompanying Chlorophyll, and their Spectroscopic Relations, Part. II, p. 38.
- Small**, The flowerless plants (Cryptogams) of the synoptic collection, p. 41.
- v. Schrenk**, A disease of the black locust *Robinia pseudacacia*, p. 43.
- Thomas**, Preliminary Account of the Prothallium of *Phylloglossum*, p. 35.
- Tourney**, An undescribed Agave from Arizona, p. 54.
- Townsend**, The effects of Hydrocyanic acid Gas upon Grains and other Seeds, p. 39.
- Trail**, Progress of botany in Scotland, p. 61.
- Underwood**, An enumeration of the Pteridophytes collected by R. S. Williams and J. B. Tarleton, p. 50.
- Whitford**, The genetic development of the forests of Northern Michigan; a study in physiographic ecology, p. 52.
- Williams**, An enumeration of the mosses collected, p. 46.
- , Tree willows at Fort Kent. Maine, p. 55.
- , *Prodromus florae britannicae*. Part. 2. including 29 genera of Asteraceae (or Compositae), p. 59.
- , On *lanthe*, a genus of Hypoxidaceae, p. 61.
- Woolson**, A new station for *Asplenium ebennoides*, p. 48.

Ausgegeben: 13. Januar 1902.

Commissions-Verlag: E. J. Brill in Leiden (Holland).

Druck von Gebrüder Gotthelf, Kgl. Hofbuchdruckerei in Cassel.